**Refuge**: Oregon Islands National Wildlife Refuge and Wilderness

**Objective:** Inventory Reptile and Amphibians of Southern Oregon Islands National Wildlife Refuge

**Inventory Timing**: June/July/August 2011

**Target Species**: Rubber Boa, Southern Alligator Lizard, Clouded Salamander, Ensatina Salamander

**Associated Species**: All reptile and amphibians species located on islands, and small mammals/invertebrates opportunistically observed/captured

**Study Area**: Goat Island, Saddle Rock and Hunters Island in Curry County, Oregon.

**Cooperators**: Dr. Susan Haig and Mark Miller, U.S. Geological Survey Forest and Rangeland Ecosystem Science Center in Corvallis, Oregon

**Methodology**: This inventory is part of a larger effort to assess the occupancy of breeding burrow-nesting seabirds (e.g., Leach's storm-petrels) that are being monitored to determine the effects of predators. The inventory of reptiles and amphibian on these off-shore islands will require biologists to access the islands via foot during low tides (Saddle Rock), swim tidal channels or access by boat (Goat Island and Hunters Island). Once on island, biologists will systematically traverse the island using low pressure snowshoes (i.e., reducing potential burrow or sensitive habitat damage) to obtain evidence of or capture all animals on island. A systematic search of the islands for terrestrial vertebrates/invertebrates has not been completed to date (USFWS 2009). All on-island work over the past 30 years has involved the inventory and monitoring of seabirds (Naughton *et al*. 2007, Boone 1985). Qualitative observations of terrestrial vertebrates has been documented during botanical and seabird surveys (Bilderback and Bilderback 2010, Boone 1985)

As on-island animal sign is observed field notes, photographs, morpho-metric measurements and the actual sign (e.g., scat, bones, and other evidence) will be collected. Location of each individual sign will be documented using a handheld GPS and associated vegetation/soils/slope will be recorded. If animals are captured using handheld nets, noose sticks or by hand, the individuals will be photographed and morpho-metric (e.g., weight, lengths) measurements collected. In addition, habitat parameters and locations will be collect in a similar manner to animal sign observed.

For future genetic analysis to determine island population uniqueness, samples will be collected from captured animals using standard genetic sampling protocols for amphibians (Miller *et al*. 2005, 2006) and small mammals (Miller *et al*. in press). Tissues samples will be taken by non-lethal tail clipping or ear punch (approximately 1 cm), using different sterile surgical scissors/punch. After sampling, animals will be promptly released precisely where they were captured. Sample tissue will be placed

immediately in a cryogenic tube containing buffer solution (100 mM Tris–HCl pH 8.0, 100 mM EDTA pH 8.0, 10 mM NaCl, 0.5% SDS) until transferred to an ultracold freezer at the USGS Lab in Corvallis, Oregon. Samples will be cold-stored for future genetic analysis unless a significant number (n=10-15) samples are collected. A large sample size will warrant future work to collect comparative mainland samples and to genetically analyze these samples to determine uniqueness of on-island populations.

**Products**: All inventory field notes, photographs, and morpho-metric measurements will be cataloged and stored at the Oregon Coast NWRC -South Coast office in Bandon with a duplicate copy archived at the Refuge Complex office in Newport. A field report of species observed and habitat use will be generated and stored at the Refuge facilities. Tissue samples will be cataloged and stored at U. S. Geological Survey Forest and Rangeland Ecosystem Science Center in Corvallis, Oregon.

**Budget**:
Field Biologists (n=2) for 5 days of field work = $250 per day = $2500
Vehicle and Boat use = covered under seabird monitoring
Field Equipment Needs: Field and collection equipment = $1000
Total = $3500

**References**:
Bilderback D. and D. Bilderback. 2010. The Flora of Seven Southern Islands and Rocks of the Oregon Island National Wildlife Refuge. Oregon Coast National Wildlife Refuge Complex, Newport, Oregon. Unpublished report. 45 p.

Boone D. 1985. Breeding biology and early life history of the tufted puffin (*Fratercula cirrhata*) [dissertation]. Corvallis, OR: Oregon State University. 46 p.

Miller M. P., S. M. Haig, and R. S. Wagner. 2005. Conflicting patterns of genetic structure produced by nuclear and mitochondrial markers in the Oregon slender salamander (*Batrachoseps wrighti*): Implications for conservation efforts and species management. Conservation Genetics 6:275–287.

Miller M. P., S. M. Haig, and R. S. Wagner. 2006. Phylogeography and Spatial Genetic Structure of the Southern Torrent Salamander: Implications for Conservation and Management. Journal of Heredity 2006:97(6):561–570.

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Naughton, M. B., D. S. Pitkin, R. W. Lowe, K. J. So, and C. S. Strong. 2007 catalog of Oregon seabird colonies. U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R1009-2007, Washington, D.C.

U.S. Fish and Wildlife Service. 2009. Oregon Islands, Three Arch Rocks, and Cape Meares National Wildlife Refuge; Comprehensive Conservation Plan and Wilderness Stewardship Plan. Newport, Oregon.